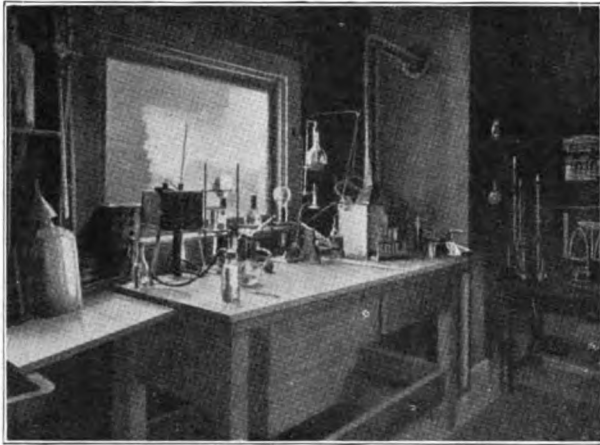


## TOOLS AND NUT LOCKS

### General

Since 1868 the Verona Tool Works have been known as manufacturers of track tools and nut locks of a peculiarly high standard. Uniform excellence of such products can only be maintained by a rigid running inspection of the finished product, coupled with definite knowledge of the qualities of the raw material, and to this end a system of physical and chemical inspection has been developed in the Verona plant that has practically eliminated the possibilities of service failure.

Besides a laboratory for analysis of incoming ma-



Laboratory of Verona Tool Works

terial, approved hardness and resistance testing machines are constantly operating on the finished product, keeping a permanent check on the "human element" and eliminating material which, under other conditions, might pass to the user as "good enough."

The two Verona products, tools and nut locks, are important items in roadway and track maintenance. The aversion of labor toward using inferior tools is well known, and the provisions of workmen's compensation laws make the furnishing of safe material and tools an economic necessity. Personal injury has too frequently resulted from sudden failure of such articles and, from both a service and safety standpoint, too great care cannot be exercised in their selection.

From its organization the Verona Tool Works has realized that continued and profitable business relations can only be maintained by furnishing a product which meets the requirements of safety and economy in service, and has subordinated the question of "first cost" to the co-ordination of cost, lasting service and elimination of failure. An experience of 50 years has resulted in satisfaction to the actual user and a saving in renewals to the purchaser.

### Verona Nut Locks

Nut locks are the almost universal means of keeping track joints tight between the visits of trackmen. Their detailed duty is to exert constantly the reactive force necessary for holding the splice bars in proper wedging contact

with the rail, at the same time preventing bolt breakage and elongation by cushioning the bolts against the intermittent impacts of passing traffic.

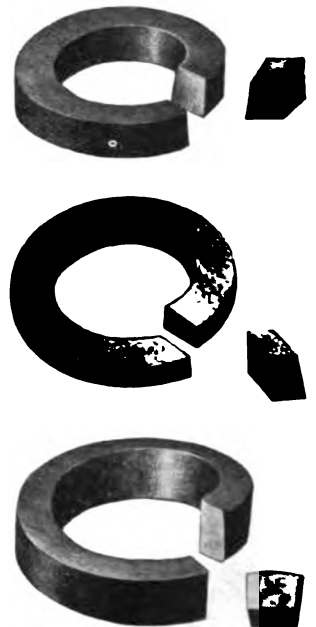
The chemical specification of the American Railway Engineering Association for spiral spring nut locks merely requires that neither phosphorus nor sulphur content shall exceed .05. The formula for nut lock steel adopted by the Verona Tool Works is known as the Pennsylvania spring steel analysis, and is as follows:

Carbon .....	0.90—1.10
Manganese .....	0.35—0.50
Phosphorus .....	below .04
Sulphur .....	below .04

The uniform and permanent resilience of Verona nut locks has been attained by the use of steel of the above analysis, by scientific heat treatment in the forming, hardening and tempering processes, and by a uniform test of each finished piece. A footnote of the A. R. E. A. nut lock specification states that a true test of the device is the amount and durability of its reactionary power and Verona's long experience has shown that this is best obtained by the use of high carbon spring steel, formed hot prior to hardening and tempering. Over a billion Verona nut locks have been placed in railroad track service since 1875, a criterion of uniform excellence which requires no further comment.

The Verona Tool Works still furnish in considerable quantities the original pattern of nut lock coiled from a square bar  $\frac{1}{4}$  in. by  $\frac{1}{4}$  in. As coiling from a square or rectangular bar produces a finished product whose greatest thickness is next the bolt, most roads today specify a finished product of parallel faces in order to assure a better bearing for the nut. This is obtained by coiling a bar of key-stone section, with the narrow end on the mandril, and the readjustment of area in forming produces the parallel faces of the finished nut locks.

The parallel nut locks most commonly in use are  $\frac{3}{8}$  in. by  $\frac{1}{4}$  in. for  $\frac{3}{4}$ -in. and  $\frac{7}{8}$ -in. bolts, and  $\frac{3}{8}$  in. by  $\frac{3}{8}$  in. for  $\frac{7}{8}$ -in. bolts and larger. The  $\frac{3}{8}$ -in. by  $\frac{3}{8}$ -in. nut lock, which Verona has produced for 10 years, furnishes an extraordinary combination of durability and reactive force, while its parallel shape provides the desired frictional bearing between nut, nut lock, and splice bar.



Verona Nut Locks

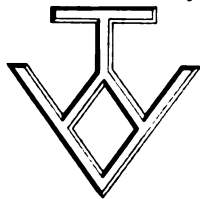
### Verona Track Tools

The productive labor of track and construction gangs varies in a considerable degree with the quality of tools used. Inferior tools mean inferior work, and the unwillingness of laborers to put forth their best efforts with tools of

VERONA TOOL WORKS, PITTSBURGH, PA.

## TRACK TOOLS

faulty and possibly unsafe design and of inferior material is well known. Every tool manufactured by the Verona Tool Works is either stamped VERONA in legible letters or bears the trade-mark shown, and there are few trackmen who do not recognize this trade-mark as standing for what is most desirable in a track tool.



Trade Mark

The section work necessitates an equipment of tamping picks, bars of various types, spike mauls, rail cutters, sledges, adzes, rail tongs and tie tongs, and the repairs around switch connections cannot be done conveniently without the use of the Verona spike puller and the Samson or Jim crow benders. Many other tools not indispensable are yet economical equipment for the section forces.

The Verona Tool Works manufacture practically every tool used in maintenance except shovels. The steel from which the tools are made is produced to a special specification and is purchased from standard steel-making concerns, which removes the possibility of inferior material going into the manufacture of Verona tools. All tools are inspected before and after each process is completed and any that show defects in heat treatment or in fabrication are rejected.

Tools are often redressed when not enough of the metal remains for economical repair. The Verona Tool Works is in a position to furnish blue prints showing the limit of wear for safe use and the stage at which the tool should be scrapped, together with detailed instructions relating to the manner of redressing tools.

### Verona Tamping Picks

Probably the tool of most universal need in maintenance is the pick. It is generally of one of two kinds, the tamping pick or the clay pick. The tamping pick has either a V tamper end, a T tamper end, or a patented diamond tamper end on one side and on the other side a diamond point end for drawing sufficient ballast aside for tamping under the tie, or for pulling out old ties for renewals. The clay pick usually has one diamond point and one chisel point, but for grading opera-



Verona Clay Pick



Verona Tamping Pick

tions both points generally are diamond point. The standard weight of the tamping pick is 7½ to 8 lb., and of the clay pick 6½ to 7 lb. The size of the eye in both the tamping and the clay pick is 2 in. by 3 in. The entire line of picks of the Verona Tool Works are made of the best grade of open hearth steel and are specially tempered.

For greater durability of the pick when repaired, either in the supervisor's blacksmith shop or in the mechanical department shops, the works supply a tamping pick end of either V or T design which weighs 2½ lb. These may be applied to old tamping picks when worn to the limit for redressing or may be attached to the chisel end of a clay pick to change it into a tamping pick.

### Verona Track Chisels

The track chisel is an indispensable tool in maintenance because of the frequency with which rails must be cut. For the best results there is necessary not only a correct design but a high quality of steel capable of taking the required temper without being made too hard. The latter condition results in quick failure of the cutting edge by pieces breaking off which endanger the eyes. If too soft the head soon brooms from the heavy blows of the striking hammer and this introduces a further danger to the eyes.



Verona Chisel Full Wedge

The Verona Tool Works makes a track chisel which has been established as standard both in design and quality of steel. The body of the Verona chisel is either the full wedge section or the double hollow face, each of which has its advocates. The essential features are the design of the point and the temper. The Verona track chisels are made of special steel, heat treated, which will give excellent service until worn out, if properly redressed. The Verona Tool Works supply rules for redressing and tempering track chisels, together with suggestions for the proper use of chisels, which are based upon a careful study of these important matters. It may not be entirely understood, for example, that the use of a sledge in place of a spike maul for striking the chisel is not only a safer practice, but increases the life of the chisel.

### Verona Track Wrenches

The track wrench is one of the most important in the list of track tools by reason of its constant use in laying new rail and maintaining existing track. Track bolts cannot be tightened to the proper degree without the use of a wrench specially designed for the particular purpose. Its length must be such that the trackman can without undue strain bring the proper tension on the bolt, and its jaws must so fit the nut as to reduce the chance of slipping and to bring lost movement to the minimum. Its material and treatment must be such as to minimize malformation in service, and the tool in general must be specially adapted to the particular track on which it is to be used.

The track wrenches made by the Verona Tool

VERONA TOOL WORKS, PITTSBURGH, PA.

## TRACK TOOLS

Works comprehend a variety of patterns, viz: The single end, with flat or round handle; the double end with straight or S-handle, which is essentially a section wrench, and especially one to be carried by the



Verona Track Wrench—Single End



Verona Track Wrench—Double End

trackwalker; and alligator wrenches, required in the adjustments about switches and handy also in dropping the bottoms of hopper cars. The Verona Tool Works adds in all wrenches made by them the feature of carefully heat treating the jaws, which greatly decreases the liability of sudden fracture so often resulting in personal injury.

### Spike Mauls and Claw Bars

In laying new track or gaging an existing track the spike maul is a primary consideration, while the claw bar is a necessary accessory. The Verona Tool Works furnish two

maul has two round faces, one standard and one small for spiking in close quarters. The No. 6 has two square beveled faces, one large, and one small.

The quality and design of the claw bar are important considerations, both from the standpoint of efficient work and for avoiding the personal injuries which result from the bar slipping or breaking at the point. The claw bar recommended by the Roadmasters' and Maintenance of Way Association is the long heel pattern with pinch top, weighing 30 lb. The Verona Tool Works supply these bars, and others of less general use in maintenance, in a quality of steel guaranteed to give service. The Verona spike puller with two or three knobs is used in conjunction with the claw bar for pulling spikes in guard rail flangeways and on bridges.



Verona Claw Bar

### Verona Railroad Adzes

The adze is a tool continually used by both track and bridge and building departments. The Verona Tool Works furnish a special railroad adze made with a clay pick eye, round pole



No. 6 Maul



Verona Spike Puller



Bell Maul

Verona Spike Mauls and Puller

leading designs of spike mauls of standard weights of 8, 9, or 10 lb. The No. 5 or bell pattern spike



Verona Railroad Adze



Half Head Adze

end and a bit from 4 to 6 in. A full head adze with standard socket also is supplied, which has a bit of  $3\frac{1}{2}$  to 6 in. The adze preferred for carpentry work is the carpenters' half head  $3\frac{1}{2}$  to  $5\frac{1}{2}$  in. bit. The adzes manufactured by the Verona Tool Works are made of solid steel and are oil tempered.



Full Head Adze

VERONA TOOL WORKS, PITTSBURGH, PA.